

Rectifier Diode

PN

The rectifier diode is a semiconductor device that utilizes the unilateral conductivity of the PN junction to convert the alternating current into a pulsating direct current.

When choosing a rectifier diode, the parameters such as maximum rectification current, maximum reverse operating current, cut-off frequency, and reverse recovery time should be considered.

1	500nS
2	150- 500nS
3	50- 100nS
4	15- 35nS

The reverse recovery time of rectifier diode could be divided into four categories due to different chip technologies:

1. The reverse recovery time of standard rectifier diode: > 500nS (nanoseconds);
2. The reverse recovery time of fast recovery rectifier diode: 150- 500nS (nanoseconds);
3. The reverse recovery time of high efficiency rectifier diode: 50- 100nS (nanoseconds);
4. The reverse recovery time of super fast recovery rectifier diode: 15- 35nS (nanoseconds).

Standard Rectifier Diode

Type	Package outline	I_o	V_{RRM}	I_{FSM}	V_F		I_R	
		A	V	A	V	$I_F(A)$	$V_R(V)$	
1N4001W	SOD-123FL	1	50	30	1.1	1	5	50
1N4002W	SOD-123FL	1	100	30	1.1	1	5	100
1N4003W	SOD-123FL	1	200	30	1.1	1	5	200
1N4004W	SOD-123FL	1	400	30	1.1	1	5	400
1N4005W	SOD-123FL	1	600	30	1.1	1	5	600
1N4006W	SOD-123FL	1	800	30	1.1	1	5	800
1N4007W	SOD-123FL	1	1000	30	1.1	1	5	1000
S1AF	SMAF	1	50	30	1.1	1	5	50
S1BF	SMAF	1	100	30	1.1	1	5	100
S1DF	SMAF	1	200	30	1.1	1	5	200
S1GF	SMAF	1	400	30	1.1	1	5	400
S1JF	SMAF	1	600	30	1.1	1	5	600
S1KF	SMAF	1	800	30	1.1	1	5	800
S1MF	SMAF	1	1000	30	1.1	1	5	1000
S2AF	SMAF	2	50	50	1.1	2	5	50
S2BF	SMAF	2	100	50	1.1	2	5	100
S2DF	SMAF	2	200	50	1.1	2	5	200
S2GF	SMAF	2	400	50	1.1	2	5	400
S2JF	SMAF	2	600	50	1.1	2	5	600

Standard Rectifier Diode

Type	Package outline	I_o	V_{RRM}	I_{FSM}	V_F		I_R	
		A	V	A	V	$I_R(A)$	$V_R(V)$	
S2KF	SMAF	2	800	50	1.1	2	5	800
S2MF	SMAF	2	1000	50	1.1	2	5	1000
S3AF	SMAF	3	50	80	1.1	3	5	50
S3BF	SMAF	3	100	80	1.1	3	5	100
S3DF	SMAF	3	200	80	1.1	3	5	200
S3GF	SMAF	3	400	80	1.1	3	5	400
S3JF	SMAF	3	600	80	1.1	3	5	600
S3KF	SMAF	3	800	80	1.1	3	5	800
S3MF	SMAF	3	1000	80	1.1	3	5	1000
S2ABF	SMBF	2	50	50	1.1	2	5	50
S2BBF	SMBF	2	100	50	1.1	2	5	100
S2DBF	SMBF	2	200	50	1.1	2	5	200
S2GBF	SMBF	2	400	50	1.1	2	5	400
S2JBF	SMBF	2	600	50	1.1	2	5	600
S2KBF	SMBF	2	800	50	1.1	2	5	800
S2MBF	SMBF	2	1000	50	1.1	2	5	1000
S3ABF	SMBF	3	50	80	1.1	3	5	50
S3BBF	SMBF	3	100	80	1.1	3	5	100
S3DBF	SMBF	3	200	80	1.1	3	5	200
S3GBF	SMBF	3	400	80	1.1	3	5	400
S3JBF	SMBF	3	600	80	1.1	3	5	600
S3KBF	SMBF	3	800	80	1.1	3	5	800
S3MBF	SMBF	3	1000	80	1.1	3	5	1000
S5ABF	SMBF	5	50	100	1.1	5	5	50
S5BBF	SMBF	5	100	100	1.1	5	5	100
S5DBF	SMBF	5	200	100	1.1	5	5	200
S5GBF	SMBF	5	400	100	1.1	5	5	400
S5JBF	SMBF	5	600	100	1.1	5	5	600
S5KBF	SMBF	5	800	100	1.1	5	5	800
S5MBF	SMBF	5	1000	100	1.1	5	5	1000
S1A	SMA	1	50	30	1.1	1	5	50
S1B	SMA	1	100	30	1.1	1	5	100
S1D	SMA	1	200	30	1.1	1	5	200
S1G	SMA	1	400	30	1.1	1	5	400
S1J	SMA	1	600	30	1.1	1	5	600
S1K	SMA	1	800	30	1.1	1	5	800
S1M	SMA	1	1000	30	1.1	1	5	1000
S2A	SMA	2	50	50	1.1	2	5	50
S2B	SMA	2	100	50	1.1	2	5	100
S2D	SMA	2	200	50	1.1	2	5	200
S2G	SMA	2	400	50	1.1	2	5	400
S2J	SMA	2	600	50	1.1	2	5	600
S2K	SMA	2	800	50	1.1	2	5	800
S2M	SMA	2	1000	50	1.1	2	5	1000
S2AB	SMB	2	50	50	1.1	2	5	50
S2BB	SMB	2	100	50	1.1	2	5	100
S2DB	SMB	2	200	50	1.1	2	5	200
S2GB	SMB	2	400	50	1.1	2	5	400

Standard Rectifier Diode

Type	Package outline	I_o	V_{RRM}	I_{FSM}	V_F		I_R	
		A	V	A	V	$I_F(A)$	$V_R(V)$	
S2JB	SMB	2	600	50	1.1	2	5	600
S2KB	SMB	2	800	50	1.1	2	5	800
S2MB	SMB	2	1000	50	1.1	2	5	1000
S3AB	SMB	3	50	80	1.1	3	5	50
S3BB	SMB	3	100	80	1.1	3	5	100
S3DB	SMB	3	200	80	1.1	3	5	200
S3GB	SMB	3	400	80	1.1	3	5	400
S3JB	SMB	3	600	80	1.1	3	5	600
S3KB	SMB	3	800	80	1.1	3	5	800
S3MB	SMB	3	1000	80	1.1	3	5	1000
S3AC	SMC	3	50	80	1.1	3	5	50
S3BC	SMC	3	100	80	1.1	3	5	100
S3DC	SMC	3	200	80	1.1	3	5	200
S3GC	SMC	3	400	80	1.1	3	5	400
S3JC	SMC	3	600	80	1.1	3	5	600
S3KC	SMC	3	800	80	1.1	3	5	800
S3MC	SMC	3	1000	80	1.1	3	5	1000
S5AC	SMC	5	50	100	1.1	5	5	50
S5BC	SMC	5	100	100	1.1	5	5	100
S5DC	SMC	5	200	100	1.1	5	5	200
S5GC	SMC	5	400	100	1.1	5	5	400
S5JC	SMC	5	600	100	1.1	5	5	600
S5KC	SMC	5	800	100	1.1	5	5	800
S5MC	SMC	5	1000	100	1.1	5	5	1000

Fast Recovery Rectifier Diode

Type	Package outline	I_o	V_{RRM}	I_{FSM}	V_F		I_R		T_{RR}
		A	V	A	V	$I_F(A)$	$V_R(V)$	ns	
FR101W	SOD-123FL	1	50	30	1.3	1	5	50	150
FR102W	SOD-123FL	1	100	30	1.3	1	5	100	150
FR103W	SOD-123FL	1	200	30	1.3	1	5	200	150
FR104W	SOD-123FL	1	400	30	1.3	1	5	400	150
FR105W	SOD-123FL	1	600	30	1.3	1	5	600	250
FR106W	SOD-123FL	1	800	30	1.3	1	5	800	500
FR107W	SOD-123FL	1	1000	30	1.3	1	5	1000	500
RS1AF	SMAF	1	50	30	1.3	1	5	50	150
RS1BF	SMAF	1	100	30	1.3	1	5	100	150
RS1DF	SMAF	1	200	30	1.3	1	5	200	150
RS1GF	SMAF	1	400	30	1.3	1	5	400	150
RS1JF	SMAF	1	600	30	1.3	1	5	600	250
RS1KF	SMAF	1	800	30	1.3	1	5	800	500
RS1MF	SMAF	1	1000	30	1.3	1	5	1000	500

Fast Recovery Rectifier Diode

Type	Package outline	I_o	V_{RRM}	I_{FSM}	V_F		I_R		I_{FSM}
		A	V	A	V	$I_F(A)$		$V_R(V)$	A
RS2AF	SMAF	2	50	50	1.3	2	5	50	150
RS2BF	SMAF	2	100	50	1.3	2	5	100	150
RS2DF	SMAF	2	200	50	1.3	2	5	200	150
RS2GF	SMAF	2	400	50	1.3	2	5	400	150
RS2JF	SMAF	2	600	50	1.3	2	5	600	250
RS2KF	SMAF	2	800	50	1.3	2	5	800	500
RS2MF	SMAF	2	1000	50	1.3	2	5	1000	500
RS3AF	SMAF	3	50	80	1.3	3	5	50	150
RS3BF	SMAF	3	100	80	1.3	3	5	100	150
RS3DF	SMAF	3	200	80	1.3	3	5	200	150
RS3GF	SMAF	3	400	80	1.3	3	5	400	150
RS3JF	SMAF	3	600	80	1.3	3	5	600	250
RS3KF	SMAF	3	800	80	1.3	3	5	800	500
RS3MF	SMAF	3	1000	80	1.3	3	5	1000	500
RS2ABF	SMBF	2	50	50	1.3	2	5	50	150
RS2BBF	SMBF	2	100	50	1.3	2	5	100	150
RS2DBF	SMBF	2	200	50	1.3	2	5	200	150
RS2GBF	SMBF	2	400	50	1.3	2	5	400	150
RS2JBF	SMBF	2	600	50	1.3	2	5	600	250
RS2KBF	SMBF	2	800	50	1.3	2	5	800	500
RS2MBF	SMBF	2	1000	50	1.3	2	5	1000	500
RS3ABF	SMBF	3	50	80	1.3	3	5	50	150
RS3BBF	SMBF	3	100	80	1.3	3	5	100	150
RS3DBF	SMBF	3	200	80	1.3	3	5	200	150
RS3GBF	SMBF	3	400	80	1.3	3	5	400	150
RS3JBF	SMBF	3	600	80	1.3	3	5	600	250
RS3KBF	SMBF	3	800	80	1.3	3	5	800	500
RS3MBF	SMBF	3	1000	80	1.3	3	5	1000	500
RS5ABF	SMBF	5	50	100	1.3	5	5	50	150
RS5BBF	SMBF	5	100	100	1.3	5	5	100	150
RS5DBF	SMBF	5	200	100	1.3	5	5	200	150
RS5GBF	SMBF	5	400	100	1.3	5	5	400	150
RS5JBF	SMBF	5	600	100	1.3	5	5	600	250
RS5KBF	SMBF	5	800	100	1.3	5	5	800	500
RS5MBF	SMBF	5	1000	100	1.3	5	5	1000	500
RS1A	SMA	1	50	30	1.3	1	5	50	150
RS1B	SMA	1	100	30	1.3	1	5	100	150
RS1D	SMA	1	200	30	1.3	1	5	200	150
RS1G	SMA	1	400	30	1.3	1	5	400	150
RS1J	SMA	1	600	30	1.3	1	5	600	250
RS1K	SMA	1	800	30	1.3	1	5	800	500
RS1M	SMA	1	1000	30	1.3	1	5	1000	500
RS2A	SMA	2	50	50	1.3	2	5	50	150
RS2B	SMA	2	100	50	1.3	2	5	100	150
RS2D	SMA	2	200	50	1.3	2	5	200	150
RS2G	SMA	2	400	50	1.3	2	5	400	150
RS2J	SMA	2	600	50	1.3	2	5	600	250
RS2K	SMA	2	800	50	1.3	2	5	800	500

High Efficiency Rectifier Diode

Type	Package outline	I_o	V_{RRM}	I_{FSM}	V_F		I_R		I_{FSM}
		A	V	A	V	$I_F(A)$		$V_R(V)$	A
US1GF	SMAF	1	400	30	1.3	1	5	400	50
US1JF	SMAF	1	600	30	1.7	1	5	600	75
US1KF	SMAF	1	800	30	1.7	1	5	800	75
US1MF	SMAF	1	1000	30	1.7	1	5	1000	75
US2AF	SMAF	2	50	50	1	2	5	50	50
US2BF	SMAF	2	100	50	1	2	5	100	50
US2DF	SMAF	2	200	50	1	2	5	200	50
US2GF	SMAF	2	400	50	1.3	2	5	400	50
US2JF	SMAF	2	600	50	1.7	2	5	600	75
US2KF	SMAF	2	800	50	1.7	2	5	800	75
US2MF	SMAF	2	1000	50	1.7	2	5	1000	75
US3AF	SMAF	3	50	80	1	3	5	50	50
US3BF	SMAF	3	100	80	1	3	5	100	50
US3DF	SMAF	3	200	80	1	3	5	200	50
US3GF	SMAF	3	400	80	1.3	3	5	400	50
US3JF	SMAF	3	600	80	1.7	3	5	600	75
US3KF	SMAF	3	800	80	1.7	3	5	800	75
US3MF	SMAF	3	1000	80	1.7	3	5	1000	75
US2ABF	SMBF	2	50	50	1	2	5	50	50
US2BBF	SMBF	2	100	50	1	2	5	100	50
US2DBF	SMBF	2	200	50	1	2	5	200	50
US2GBF	SMBF	2	400	50	1.3	2	5	400	50
US2JBF	SMBF	2	600	50	1.7	2	5	600	75
US2KBF	SMBF	2	800	50	1.7	2	5	800	75
US2MBF	SMBF	2	1000	50	1.7	2	5	1000	75
US3ABF	SMBF	3	50	80	1	3	5	50	50
US3BBF	SMBF	3	100	80	1	3	5	100	50
US3DBF	SMBF	3	200	80	1	3	5	200	50
US3GBF	SMBF	3	400	80	1.3	3	5	400	50
US3JBF	SMBF	3	600	80	1.7	3	5	600	75
US3KBF	SMBF	3	800	80	1.7	3	5	800	75
US3MBF	SMBF	3	1000	80	1.7	3	5	1000	75
US5ABF	SMBF	5	50	100	1	5	5	50	50
US5BBF	SMBF	5	100	100	1	5	5	100	50
US5DBF	SMBF	5	200	100	1	5	5	200	50
US5GBF	SMBF	5	400	100	1.3	5	5	400	50
US5JBF	SMBF	5	600	100	1.7	5	5	600	75
US5KBF	SMBF	5	800	100	1.7	5	5	800	75
US5MBF	SMBF	5	1000	100	1.7	5	5	1000	75
US1A	SMA	1	50	30	1	1	5	50	50
US1B	SMA	1	100	30	1	1	5	100	50
US1D	SMA	1	200	30	1	1	5	200	50
US1G	SMA	1	400	30	1.3	1	5	400	50
US1J	SMA	1	600	30	1.7	1	5	600	75
US1K	SMA	1	800	30	1.7	1	5	800	75
US1M	SMA	1	1000	30	1.7	1	5	1000	75
US2A	SMA	2	50	50	1	2	5	50	50
US2B	SMA	2	100	50	1	2	5	100	50

High Efficiency Rectifier Diode

Type	Package outline	I_o	V_{RRM}	I_{FSM}	V_F		I_R		I_{FSM}
		A	V	A	V	$I_F(A)$		$V_R(V)$	A
US2D	SMA	2	200	50	1	2	5	200	50
US2G	SMA	2	400	50	1.3	2	5	400	50
US2J	SMA	2	600	50	1.7	2	5	600	75
US2K	SMA	2	800	50	1.7	2	5	800	75
US2M	SMA	2	1000	50	1.7	2	5	1000	75
US2AB	SMB	2	50	50	1	2	5	50	50
US2BB	SMB	2	100	50	1	2	5	100	50
US2DB	SMB	2	200	50	1	2	5	200	50
US2GB	SMB	2	400	50	1.3	2	5	400	50
US2JB	SMB	2	600	50	1.7	2	5	600	75
US2KB	SMB	2	800	50	1.7	2	5	800	75
US2MB	SMB	2	1000	50	1.7	2	5	1000	75
US3AB	SMB	3	50	80	1	3	5	50	50
US3BB	SMB	3	100	80	1	3	5	100	50
US3DB	SMB	3	200	80	1	3	5	200	50
US3GB	SMB	3	400	80	1.3	3	5	400	50
US3JB	SMB	3	600	80	1.7	3	5	600	75
US3KB	SMB	3	800	80	1.7	3	5	800	75
US3MB	SMB	3	1000	80	1.7	3	5	1000	75
US3AC	SMC	3	50	80	1	3	5	50	50
US3BC	SMC	3	100	80	1	3	5	100	50
US3DC	SMC	3	200	80	1	3	5	200	50
US3GC	SMC	3	400	80	1.3	3	5	400	50
US3JC	SMC	3	600	80	1.7	3	5	600	75
US3KC	SMC	3	800	80	1.7	3	5	800	75
US3MC	SMC	3	1000	80	1.7	3	5	1000	75
US5AC	SMC	5	50	100	1	5	5	50	50
US5BC	SMC	5	100	100	1	5	5	100	50
US5DC	SMC	5	200	100	1	5	5	200	50
US5GC	SMC	5	400	100	1.3	5	5	400	50
US5JC	SMC	5	600	100	1.7	5	5	600	75
US5KC	SMC	5	800	100	1.7	5	5	800	75
US5MC	SMC	5	1000	100	1.7	5	5	1000	75

Super Fast Recovery Rectifier Diode

Type	Package outline	I_o	V_{RRM}	I_{FSM}	V_F		I_R		I_{FSM}
		A	V	A	V	$I_F(A)$		$V_R(V)$	A
ES1AW	SOD - 123FL	1	50	30	1	1	5	50	35
ES1BW	SOD - 123FL	1	100	30	1	1	5	100	35
ES1DW	SOD - 123FL	1	200	30	1	1	5	200	35
ES1GW	SOD - 123FL	1	400	30	1.25	1	5	400	35
ES1JW	SOD - 123FL	1	600	30	1.7	1	5	600	35
ES1AF	SMAF	1	50	30	1	1	5	50	35

Super Fast Recovery Rectifier Diode

Type	Package outline	I_o	V_{RRM}	I_{FSM}	V_F		I_R		I_{FSM}
		A	V	A	V	$I_F(A)$		$V_R(V)$	A
ES1BF	SMAF	1	100	30	1	1	5	100	35
ES1DF	SMAF	1	200	30	1	1	5	200	35
ES1GF	SMAF	1	400	30	1.25	1	5	400	35
ES1JF	SMAF	1	600	30	1.7	1	5	600	35
ES2AF	SMAF	2	50	50	1	2	5	50	35
ES2BF	SMAF	2	100	50	1	2	5	100	35
ES2DF	SMAF	2	200	50	1	2	5	200	35
ES2GF	SMAF	2	400	50	1.25	2	5	400	35
ES2JF	SMAF	2	600	50	1.7	2	5	600	35
ES3AF	SMAF	3	50	80	1	3	5	50	35
ES3BF	SMAF	3	100	80	1	3	5	100	35
ES3DF	SMAF	3	200	80	1	3	5	200	35
ES3GF	SMAF	3	400	80	1.25	3	5	400	35
ES3JF	SMAF	3	600	80	1.7	3	5	600	35
ES2ABF	SMBF	2	50	50	1	2	5	50	35
ES2BBF	SMBF	2	100	50	1	2	5	100	35
ES2DBF	SMBF	2	200	50	1	2	5	200	35
ES2GBF	SMBF	2	400	50	1.25	2	5	400	35
ES2JBF	SMBF	2	600	50	1.7	2	5	600	35
ES3ABF	SMBF	3	50	80	1	3	5	50	35
ES3BBF	SMBF	3	100	80	1	3	5	100	35
ES3DBF	SMBF	3	200	80	1	3	5	200	35
ES3GBF	SMBF	3	400	80	1.25	3	5	400	35
ES3JBF	SMBF	3	600	80	1.7	3	5	600	35
ES1A	SMA	1	50	30	1	1	5	50	35
ES1B	SMA	1	100	30	1	1	5	100	35
ES1D	SMA	1	200	30	1	1	5	200	35
ES1G	SMA	1	400	30	1.25	1	5	400	35
ES1J	SMA	1	600	30	1.7	1	5	600	35
ES2A	SMA	2	50	50	1	2	5	50	35
ES2B	SMA	2	100	50	1	2	5	100	35
ES2D	SMA	2	200	50	1	2	5	200	35
ES2G	SMA	2	400	50	1.25	2	5	400	35
ES2J	SMA	2	600	50	1.7	2	5	600	35
ES2AB	SMB	2	50	50	1	2	5	50	35
ES2BB	SMB	2	100	50	1	2	5	100	35
ES2DB	SMB	2	200	50	1	2	5	200	35
ES2GB	SMB	2	400	50	1.25	2	5	400	35
ES2JB	SMB	2	600	50	1.7	2	5	600	35
ES3AB	SMB	3	50	80	1	3	5	50	35
ES3BB	SMB	3	100	80	1	3	5	100	35
ES3DB	SMB	3	200	80	1	3	5	200	35
ES3GB	SMB	3	400	80	1.25	3	5	400	35
ES3JB	SMB	3	600	80	1.7	3	5	600	35
ES3AC	SMC	3	50	100	1	3	5	50	35
ES3BC	SMC	3	100	100	1	3	5	100	35
ES3DC	SMC	3	200	100	1	3	5	200	35
ES3GC	SMC	3	400	100	1.25	3	5	400	35
ES3JC	SMC	3	600	100	1.7	3	5	600	35
ES5AC	SMC	5	50	100	1	5	5	50	35
ES5BC	SMC	5	100	100	1	5	5	100	35
ES5DC	SMC	5	200	100	1	5	5	200	35
ES5GC	SMC	5	400	100	1.25	5	5	400	35
ES5JC	SMC	5	600	100	1.7	5	5	600	35